

CLAIMS

1. A method of load control in a radio communications system, the method characterized in that one or more signals carrying radio resource data are transferred from a radio resource management entity to a transport protocol receiver.
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2. The method according to claim 1 characterized in that the radio resource management entity is included in or is a radio network controller.
3. The method according to claim 2 characterized in that the radio network controller controls radio resources of user equipment including or representing the transport protocol receiver.
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4. A method of load control in a radio communications system, the method characterized in that one or more signals carrying radio resource data are transferred from a radio link control protocol layer to a transport protocol layer of a transport protocol receiver.
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5. The method according to any of claims 1-4 characterized in that a transport protocol parameter is determined on basis of the transferred radio resource data.
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6. The method according to claim 5 characterized in that the transport protocol parameter is receiver advertised window or receiver maximum segment size.
7. The method according to claim 5 or 6 characterized in that the transport protocol parameter is included in a transport protocol acknowledgement to a transport protocol sender.
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8. The method according to claim 7 characterized in that the transport protocol parameter is a parameter of congestion control in the transport protocol sender.
- 5 9. The method according to any of claims 1-8 characterized in that the transport protocol receiver is included in or is a User Equipment.
- 10 10. A method of load control in a radio communications system, the method characterized in that one or more signals carrying radio resource data are transferred from a radio resource management entity to a transport protocol sender.
- 15 11. The method according to claim 10 characterized in that the radio resource management entity is included in or is a radio network controller.
- 20 12. A method of load control in a radio communications system, the method characterized in that one or more signals carrying radio resource data are transferred from a radio link control protocol layer to a transport protocol layer of a transport protocol sender.
- 25 13. The method according to any of claims 10-12 characterized in that a transport protocol parameter is determined on basis of the transferred radio resource data.
- 30 14. The method according to claim 13 characterized in that the transport protocol parameter is sender maximum send window or sender maximum segment size.
15. The method according to claim 14 characterized in that the sender maximum send window upper limits a transport protocol congestion control send window.

16. The method according to any of claims 1-15 c h a r -
a c t e r i z e d i n t h a t t h e r a d i o r e s o u r c e d a t a i s
l i n k s t a t e i n f o r m a t i o n c o m p r i s i n g a t l e a s t o n e o f

- r a d i o l i n k d a t a r a t e o r b i t r a t e ,
- 5 - r o u n d - t r i p t i m e ,
- b l o c k e r r o r r a t e ,
- d e l a y a n d
- p a c k e t l o s s r a t e .

17. The method according to any of claims 1-16 c h a r -
10 a c t e r i z e d i n t h a t i t i s a m e t h o d o f d y n a m i c l o a d
c o n t r o l .

18. A method of radio resource management in a radio com-
m u n i c a t i o n s s y s t e m , t h e m e t h o d c h a r a c t e r i z e d
i n t h a t o n e o r m o r e s i g n a l s c a r r y i n g r a d i o r e s o u r c e d a t a
15 a r e t r a n s f e r r e d f r o m a t r a n s p o r t p r o t o c o l s e n d e r t o a r a d i o
r e s o u r c e m a n a g e m e n t e n t i t y .

19. The method according to claim 18 c h a r a c t e r -
i z e d i n t h a t t h e r a d i o r e s o u r c e m a n a g e m e n t e n t i t y i s
i n c l u d e d i n o r i s a r a d i o n e t w o r k c o n t r o l l e r .

20. The method according to claim 18 or 19 c h a r a c -
t e r i z e d i n t h a t r a d i o l i n k d a t a r a t e o r b i t r a t e
i s d e t e r m i n e d o n b a s i s o f t h e t r a n s f e r r e d r a d i o r e s o u r c e
d a t a .

21. The method according to any of claims 18-20 c h a r -
25 a c t e r i z e d i n t h a t t h e r a d i o r e s o u r c e d a t a i s a t
l e a s t o n e o f

- r e q u e s t e d r a d i o l i n k d a t a r a t e o r b i t r a t e , a n d

- data related to data amount of one or more requested data objects.

22. The method according to any of claims 10-21 characterized in that the transport protocol sender
5 is included in or is a User Equipment.

23. The method according to claim 11 or 19 characterized in that the radio network controller controls radio resources of user equipment including or representing the transport protocol sender.

10 24. The method according to claim 23 characterized in that the transport control protocol is the Transport Control Protocol, TCP, used on the Internet.

25. A transport protocol receiver in a radio communications system characterized by circuitry for
15 receiving one or more signals carrying radio resource data and one or more processing elements for determining a transport protocol parameter of the transport protocol receiver on basis of the radio resource data.

26. A transport protocol receiver in a radio communications system characterized by circuitry for
20 transferring signals carrying radio resource data from radio link control protocol layer to transport protocol layer and one or more processing elements for determining a transport protocol parameter of the transport protocol receiver
25 on basis of the radio resource data.

27. The transport protocol receiver according to claim 25 or 26 characterized in that the transport protocol parameter is receive window or receiver maximum segment size.

28. The transport protocol receiver according to any of claims 25-27 characterized by a processing element for including the parameter in a transport protocol acknowledgement to a transport protocol sender.

5 29. The transport protocol receiver according to claim 25-28 characterized in that the radio resource data is link state information comprising at least one of

- radio link data rate or bit rate,
- 10 - round-trip time,
- block error rate,
- delay, and
- packet loss rate.

30. The transport protocol receiver according to any of
15 claims 25-29 characterized in that the transport protocol receiver is a TCP receiver.

31. The transport protocol receiver according to any of
claims 25-30 characterized in that the
transport protocol receiver is included in or is a User
20 Equipment.

32. A transport protocol sender in a radio communications
system characterized by circuitry for re-
ceiving signals carrying radio resource data and one or
more processing elements for determining a transport proto-
25 col parameter on basis of the radio resource data.

33. A transport protocol sender in a radio communications
system characterized by circuitry for
transferring signals carrying radio resource data from a
radio link control protocol layer to a transport protocol

layer and one or more processing elements for determining a transport protocol parameter on basis of the radio resource data.

34. The transport protocol sender according to claim 32 or
5 33 characterized in that the transport protocol parameter is sender maximum send window or sender maximum segment size

35. The transport protocol sender according to claim 32 or
33 characterized by a processing element
10 for upper limiting the transport protocol layer send window for congestion control.

36. The transport protocol sender according to claim 32-35
characterized in that the radio resource data is link state information comprising at least one of
15 - radio link data rate or bit rate,
- round-trip time,
- block error rate,
- delay, and
- packet loss rate.

20 37. A transport protocol sender in a radio communications system characterized by one or more processing elements for determining radio resource data on basis of amount of data of requested objects and circuitry for transferring one or more signals carrying the radio re-
25 source data.

38. The transport protocol sender according to claim 37
characterized in that the transfer of the one or more signals is transfer to radio resource management.

39. The transport protocol sender according to any of claims 32-38 characterized in that the radio resource data is radio link data rate or bit rate.

40. The transport protocol sender according to any of
5 claims 32-39 characterized in that the transport protocol sender is a TCP sender.

41. The transport protocol sender according to any of claims 32-40 characterized in that the transport protocol sender is included in or is a User
10 Equipment.

42. A radio communications system characterized by means for carrying out the method in any of claims 1-24.

43. A radio communications system characterized
15 ized by a plurality of transport protocol transceivers according to any of claims 25-41.